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NEW REPTILES AND AMPHIBIANS
FROM HONDURAS

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The Marshall Field Central American Expedition of 1923, composed of Leon L. Walters, Staff Taxidermist of Field Museum, and myself, made considerable collections of amphibians and reptiles in Honduras. From these collections the two salamanders *Oedipus nasalis* and *O. schmidti* were described as new by Emmett R. Dunn in 1924, and *Sceloporus schmidti* in 1927, by J. Paul Jones. To these novelties I can now add seven more, the types of which, thanks to my tenure of a John Simon Guggenheim Memorial Fellowship, I have been able to compare with Central American collections in the British Museum. The present paper is preliminary to further studies on the reptiles and amphibians of upper Central America in pursuance of a program of work on this region begun in 1923 for Field Museum and now carried on under the joint auspices of Field Museum and the Guggenheim Foundation.

While in Honduras Mr. Walters and I were most cordially entertained at the Hacienda Santa Ana where M. S. Miles, an American resident in Honduras, with Mrs. Miles, did everything in their power to further our work. The fine location of the hacienda, at the base of the Sierra de Merendon¹ and at the mouth of the canyon of the Rio Santa Ana, made it an extremely effective base for collecting, giving access to the pastures and stream and lake borders of the flat plain of the Valle de Sula, the rocky canyon of the Santa Ana, and the cloud forest, which here extends from about 4,000 feet to the top of the range, approximately 6,000 feet above the sea, in the Sierra de Merendon.

The new species in the present list are a salamander of the genus *Oedipus*, frogs of the genera *Hyla* and *Eleutherodactylus*, and a lizard of the genus *Celestus*, all from the cloud forest above 4,000

¹Sierra de Merendon is here used as a general name for the whole range which divides the joint valleys of the Chamelecon and Ulua in Honduras from that of the Motagua in Guatemala.

feet; a very large *Eleutherodactylus*, from the lower gorge of the Santa Ana; and a lizard of the remarkable genus *Laemancus*, from Lake Ticamaya, east of San Pedro, on the plain.

Oedipus dunni¹ sp. nov.

Oedipus morio Dunn (nec Cope), Salamanders of the Family Plethodontidae, p. 387, 1926.

Type from mountains west of San Pedro, Honduras. Altitude 4500 feet. No. 4550 Field Museum of Natural History. Adult male. Collected May 5, 1923, by Karl P. Schmidt.

Range.—Known only from the type locality.

Diagnosis.—A medium-sized *Oedipus* with toes webbed so that one phalanx of the third toe is free; vomerine series of about fifteen teeth, reaching beyond the outer edge of the choanae; two color phases, one uniform light reddish brown, the other dark gray with light spots or a light band above; allied to *Oedipus morio* of western Guatemala, with which it agrees in having two color phases and from which it is distinguished by the greater amount of web; allied also to *O. subpalmatus* of Costa Rica, which is black and has slightly shorter limbs and fewer vomerine teeth.

Description of type.—Costal grooves 13, adpressed toes overlapping; width of head contained five times in the length from snout to vent; length of head less than three times in length of body; head truncate, outline as seen from above slightly concave between the nostrils; eye as long as its distance from tip of snout; snout strongly swollen; outline of upper jaw straight as seen from the side; angle of jaw back of posterior angle of eye; both eyelids fitting under a fold of skin behind; a groove from eye to behind angle of jaw; limbs well developed; fingers 3, 4, 2, 1, in order of length, last joint of third and fourth free of web, tips of second and fifth free, first completely within web; tail longer than body, terete, with a basal constriction; vent lined with papillae; vomerine teeth 16–17, beginning beyond the outer edge of the choanae, the two series separated by the width of one of the choanae, and from the parasphenoid teeth by four times that distance; parasphenoid teeth in incompletely divided patches, beginning opposite anterior fourth of eye-socket; two premaxillary teeth pierce the lip; light reddish brown above, lighter beneath, a dark line back of eye; costal grooves darker; surface of feet with light dots.

¹Named for Dr. Emmett Reid Dunn, well known for his contributions to the study of this remarkable genus of salamanders.

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Measurements.—Total length 111 mm., head 15 mm., tail 53 mm.

Notes on paratypes.—The series of eighteen paratypes, F.M.N.H. Nos. 4544-5 and 4547-62, exhibits the curious color dimorphism described by Dunn, nine being uniform pale reddish in color and nine dark gray, with or without a light longitudinal dorsal band.

Remarks.—The description of this species closely follows Dunn's description of the same specimens under the heading of *Oedipus morio*. Dunn writes me that a large collection of *Oedipus* from western Guatemala proves that *bocourti* and *rostratus* are synonymous with true *morio*, and that his description of *rostratus* in "Salamanders of the Family Plethodontidae" applies to the true *morio*. He has kindly agreed to my naming this form, which enables me to associate his name with my own in the genus *Oedipus*, in two species from the same mountain, both collected by myself with Dunn's long-continued interest in this group in mind.

Eleutherodactylus merendonensis sp. nov.

Type from the lower Santa Ana Canyon, west of San Pedro, Honduras. Altitude 500 feet. No. 4672 Field Museum of Natural History. Adult female. Collected March 20, 1923, by Karl P. Schmidt.

Range.—Known only from the type locality.

Diagnosis.—A very large *Eleutherodactylus* with long slender limbs; vomerine teeth in two juxtaposed series well behind and within the inner borders of the choanae; tympanum one-third the diameter of the eye; disks well developed, equal; toes about one-third webbed; skin finely rugose above without warty folds, smooth beneath; thighs posteriorly brown, with small white spots.

Description of type.—Head as wide as the body, its width a little greater than its length from tip of snout to posterior border of tympanum; nostrils near the tip of the snout, which is truncate, with fairly well-defined canthus, the loreal region concave; length of eye a little longer than the distance from the eye to the nostril; diameter of tympanum one-third the length of the eye; narrower than its distance from the eye; heels just meeting when limbs are placed at right angles to body; heel reaching the nostril when leg is placed along body; disks of fingers and toes subequal, about twice as wide as the phalanx immediately behind them; first and second fingers equal; inner metatarsal tubercle elongate, outer small, distinct; skin of back very finely rugose, without a median raised line; skin of belly and thighs perfectly smooth posteriorly on the thighs,

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toward the anus, faintly granulate; vomerine teeth incurved, short, prominently raised and juxtaposed series, well behind the choanae, their outer borders well within the inner borders of the choanae; tongue nearly circular, slightly notched behind.

Color dark brown above, with no distinct markings, lighter beneath; thighs and tibiae with obscure traces of broad bars; posterior face of thighs brown with small white spots.

Measurements.—Length from tip of snout to anus 80 mm.; from tip of snout to posterior border of tympanum 27 mm.; width of head 29 mm.; arm 42 mm.; leg 116 mm.; tibia 38 mm.

Remarks.—Distinguished from *Eleutherodactylus laevissimus* Werner by its much larger size, larger disks, and much more extensively webbed toes.

*Eleutherodactylus milesi*¹ sp. nov.

Type from mountains west of San Pedro, Honduras. Altitude 4500 feet. No. 4699 Field Museum of Natural History. Adult female. Collected March 31, 1923, by Karl P. Schmidt and Leon L. Walters.

Range.—Mountains near San Pedro and above Ceiba, Honduras.

Diagnosis.—A moderate-sized *Eleutherodactylus* with short high snout, rugose dorsal skin, smooth belly, no webs, small digital disks, small and indistinct tympanum, vomerine teeth in short oblique separated patches behind and within the choanae. Distinguished from *Eleutherodactylus rugulosus* by its much smaller and less distinct tympanum.

Description of type.—Head as wide as body, its width a little greater than the distance from tip of snout to posterior border of tympanum; snout short, the nostril but little nearer its tip than to the eye, canthus distinct, loreal region slightly concave; length of eye much more than its distance from the nostril; tympanum somewhat indistinct, one-third the length of the eye, equal to its distance from the eye; heels just meeting when the legs are placed at right angles to the body; heel reaching tip of snout when the leg is extended along the body; disks of fingers and toes subequal, small, about once and a half as wide as the phalanx immediately behind them; first finger slightly shorter than the second; inner metatarsal tubercle enlarged, one-half the length of the inner toe, outer small but very distinct; skin of back rugose, more coarsely

¹Named for M. S. Miles, our genial and helpful host at the Hacienda Santa Ana in 1923.

on the sides, some of the tubercles uniting into glandular elongations; an obscure W on the anterior part of the back; upper surfaces of thighs and tibiae as rough as the back; a glandular fold from the eye over the tympanum; skin of belly and lower surface of thighs perfectly smooth; vomerine teeth in small oblique groups, well separated, behind and within the very small choanae; tongue nearly circular, slightly notched behind.

Color dark brown above, light beneath with brown mottling; a median light line on the chin; feet and lips with traces of light crossbars; a light spot on each side of the anus on the posterior faces of the thighs which are otherwise dark brown, uniform; a light spot on each side above and in front of the hind limbs.

Measurements.—Length from tip of snout to anus 33.5 mm.; tip of snout to posterior border of tympanum 12.7 mm.; width of head 14.2 mm.; arm 22 mm.; leg 58 mm.; tibia 19 mm.

Notes on paratypes.—Forty-two specimens, F.M.N.H. Nos. 4700–4713, were collected by Mr. Walters and myself at the type locality. These are in excellent agreement with the above description, though variable in degree of dorsal rugosity and in shade of gray. Thanks to the courteous loan of Honduran specimens by Dr. Thomas Barbour, I have been able to examine six additional specimens from the mountains above Santa Ana, and two from the mountains behind Ceiba, collected for the Museum of Comparative Zoology by R. E. Stadelman.

*Hyla bromeliacia*¹ sp. nov.

Type from mountains west of San Pedro, Honduras. Altitude 4500 feet. No. 4718 Field Museum of Natural History. Adult male. Collected March 30, 1923, by Karl P. Schmidt and Leon L. Walters.

Range.—Known only from the type locality.

Diagnosis.—A small smooth *Hyla* with vomerine teeth between the choanae; fingers free; toes one-third webbed; tympanum distinct; breeding male with barely distinguishable brown velvety pad at the base of the thumb, and with external vocal sacs; no distinctive color pattern.

Description of type.—Head short, broader than body, its width equal to the distance from tip of snout to posterior border of tym-

¹Named in allusion to the habitat of this species, which lays its eggs in the water at the bases of the leaves of the bromeliads abundant in the Merendon cloud forest.

panum; heels overlapping when legs are placed at right angles to the body; heel reaching to between eye and tip of snout when the leg is drawn forward along side of body; nostril much nearer to tip of snout than to eye; canthus distinct; tympanum about one-third the diameter of the eye, distinct, with a narrow curved fold above it; eye as long as snout; vomerine teeth in two small round distinct patches in line with the choanae, closer together than their distance from the choanae; tongue small, nearly circular, barely notched behind; skin smooth above, nearly so below on the ventral disk, behind which the belly and lower surfaces of the thighs are granular; throat slightly granular; two phalanges of the fourth toe free; fingers free; disks small, but equal in size to the tympanum; a pair of external vocal sacs opening by slits at either side of the tongue; base of thumb with a brown velvety pad.

Brown above, light beneath, without any distinct markings.

Measurements.—Length from tip of snout to anus 28 mm.; width of head 11 mm.; arm 16 mm.; leg 44 mm.

Notes on paratypes.—The paratypes form a uniform series of four males, four females and one juvenile, F.M.N.H. Nos. 4714–17 and 4719–23. The ventral granulation is more distinct in these than in the type, and the ventral disk less so; obscure brown mottling appears in some; all have the concealed surfaces of the thighs unmarked. The largest female measures 36 mm. from snout to anus. Three females have indistinct brown reticulate markings on the back. I have seen two additional specimens of this species in the Museum of Comparative Zoology, from approximately the same locality, collected by R. E. Stadelman on April 18, 1931.

Remarks.—The voice of the calling male has a distinctive quality, like isolated strokes on a small clear bell. This species appears to be related more nearly to *Hyla sumichrasti* than to any other Central American form; it is distinguished from *sumichrasti* by its evident vomerine teeth and shorter webs. The tadpole, unlike the specialized tadpoles of the bromeliad *Hylas* of Jamaica, has a full complement of horny teeth.

Laemanctus waltersi¹ sp. nov.

Type from Lake Ticamaya, east of San Pedro, between the Chamelecon and Ulua Rivers, Honduras. No. 5213 Field Museum

¹Named for Leon L. Walters, Staff Taxidermist, Field Museum of Natural History, my valued field companion in Honduras, whose habitat group of American crocodiles is the most notable result of our joint expedition.

of Natural History. Adult female. Collected April 20, 1923, by Karl P. Schmidt and Leon L. Walters.

Range.—Known only from the type locality.

Diagnosis.—A *Laemancus* with scales on the upper surface of the snout a little larger than those of the occipital region; no dorsal crest; no distinct serration of the posterior contour of the head; body scales large, smooth above, sharply keeled beneath, thirty-two around middle of body as compared with forty-two in *Laemancus deborrei*, its nearest ally.

Description of type.—Habitus of *Laemancus deborrei*; head prolonged behind, its upper surface plane; length of head contained in length from tip of snout to anus three and one-fourth times (about two and one-half times in *L. deborrei*); scales of upper part of snout slightly larger than those of the occipital region; upper labials ten, lower labials nine; eighteen scales from the very obscure collar to the mental; thirty-three scales from the anus to the collar; thirty-two scales around mid-body; posterior border of casque with uniform lateral rows of scales; two or three loreal rows; seven or eight temporal rows from border of lip to lateral edge of casque; ventral scales strongly keeled.

Color (in alcohol) purple above, with indistinct cross-bands alternately lighter and darker which are most distinct in the vertebral region and continue on the base of the tail; a latero-ventral light line composed of yellow spots on the tips of scales; a few black spots from lower posterior border of eye to side of neck.

Measurements.—Total length 510 mm.; tail 400 mm.; length of head to tip of casque 34.4 mm.; arm 57 mm.; leg 101 mm.

Remarks.—Distinguished from *Laemancus deborrei* by its larger scales on almost every part of the body and by the very obscure collar, which is well developed in the more northern form.

Celestus montanus sp. nov.

Type from the mountains west of San Pedro, Honduras (the Sierra de Merendon). Altitude 4500 feet. No. 5066 Field Museum of Natural History. Adult female. Collected April 1, 1923, by Karl P. Schmidt and Leon L. Walters.

Diagnosis.—A *Celestus* with well-developed limbs, two pairs of internasals, frontal not twice as long as broad, interparietal smaller than the parietals, caudal scales striated but not keeled, distal portion of the hind toes angularly bent and covered beneath with

smooth lamellae, and with thirty-three scales around the body. It is allied in these characters to *Celestus steindachneri*, from which it differs in having three prefrontals in contact with the frontal.

Description of type.—Habitus lacertiform, with well-developed limbs, though the limbs fail to meet when adpressed, by the length of the forearm; head small, snout depressed, flattened, with rounded canthus; tail stout and parallel-sided at base, reproduced distally, ear opening very small.

The large frontal shield is less than one and one-half times as long as broad; three prefrontals in contact with the frontal; two pairs of transversely elongate shields between the prefrontals and the rostral; five supraoculars, the first excluded from contact with the frontal, the second and third in contact with the frontal; five supraciliaries; two shields between the frontal and superior temporal separate the parietals from the supraoculars; interparietal smaller than the parietals, in contact with the frontal and occipital, the latter slightly broader than long, slightly broader than the interparietal; nasal in contact with the rostral, followed by two small superposed postnasals; these are succeeded by a small preloreal shield about as wide as high; anterior loreal much higher than long, in contact with the posterior internasal and lateral prefrontal; three more small shields lead to the crescentic subocular; eleven supralabials, the suture between the seventh and eighth shortest and below the eye; temporals 4-4. Thirty-three scales around the body, the ventrals smooth, the dorsals finely striated; seventeen transverse lamellae beneath the proximal part of the longest toe, six longer and smoother scales beneath the distal portion; reproduced part of tail with keeled scales. Olive green above, lighter on the sides, yellowish green beneath; small black spots on the back and sides.

Measurements.—Total length (tail reproduced) 150 mm.; tip of snout to anal cleft 80 mm.; fore limb 16 mm.; hind limb 24 mm.; tip of snout to posterior border of ear 14.5 mm.

Remarks.—This specimen, a gravid female, was found in the thatch of a sarsero's (sarsaparilla collector's) shelter at the lower border of the cloud forest in the Sierra de Merendon. The type specimen of *Sceloporus schmidtii* was taken on one of the supports of this same shelter. The new *Celestus* differs from *C. nuchalis* in having a smaller median prefrontal, more depressed, non-terete body, larger number of upper labials, narrow, parallel-sided postmental, smaller ear, temporals 4-4 instead of 5-5, as well as in other details. It is clearly most nearly allied to *Celestus steindachneri*.

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